Design and preliminary performance test of a compact, stable on-board calibrator

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The on-board calibrator (OBC) is crucial for consistent radiometric accuracy of spaceborne remote sensing sensors [1,2]. Unsatisfiedly, large space cameras or wide-field imagers are hardly equipped with conventional OBCs due to optical architectures and constraints from satellites. On the basis of a special combination of a tilted standard detector, a standard lamp, and a perforated plate diffuser, a compact and effective scheme is proposed to make OBC available to large space cameras. The tilted standard detector is for solar calibration and calibration site observation through the aperture of the camera, and partly similar to the MODIS solar diffuser stability monitor [3] in principle. Another benefit of OBC originates from that it contains no moving mechanisms, which leads to greater reliability. The prototype of the calibrator was designed, and the preliminary performance test was carried out. The results show the OBC's potential benefit of providing an accurate and stable standard to large space cameras.

References

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